

10/586229

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SEQUENCE LISTING

<110> VOLLMERS, Heinz Peter  
MUELLER-HERMELINK, Hans Konrad  
HENSEL, Frank

<120> Neoplasm-Specific Polypeptides and Their  
Uses

<130> 50274/021003

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<151> 2005-01-26

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aca ctg act gca gac aaa tcc tcc agc aca gcc tac atg cag ctc agc 192  
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agc ctg aca tct gag gac tct gca gtc tat ttc tgt gca aga tcg gga 240  
Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Ser Gly  
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 Pro Gly Ser Gly Asn Thr Tyr Tyr Asn Glu Lys Phe Lys Gly Lys Ala  
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 Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser  
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 Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Ser Gly  
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 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu  
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 tgg tac ctg cag aaa cca ggc cag tct cca aag ctc ctg atc tac aaa   144  
 Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys  
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 Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp  
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 ctg gga gtt tat tac tgc ttt caa ggt tca cat gtt ccg tac acg ttc   288  
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50 55 60  
Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp  
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Val Ala Arg Glu Val Cys Lys Ser Thr Ile Thr Glu Ile Glu Glu Cys  
35 40 45

gct gat gaa ccg gtt gga aaa ggt tac atg gtt tcc tgc ttg gtg gat 192  
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cac cga ggc aac atc act gag tat cag tgt cac cag tac att acc aag 240  
His Arg Gly Asn Ile Thr Glu Tyr Gln Cys His Gln Tyr Ile Thr Lys  
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Met Thr Ala Ile Ile Phe Ser Asp Tyr Arg Leu Ile Cys Gly Phe Met

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ctt gga gaa aag gat gca cat tca caa ggt gag gtg gta tca tgc ttg Leu Gly Glu Lys Asp Ala His Ser Gln Gly Glu Val Val Ser Cys Leu 115	120	125	384
gag aaa ggc ctg gtg aaa gaa gca gaa gaa aga gaa ccc aag att caa Glu Lys Gly Leu Val Lys Glu Ala Glu Glu Arg Glu Pro Lys Ile Gln 130	135	140	432
gtt tct gaa ctc tgc aag aaa gcc att ctc cggt gct gag ctg tca Val Ser Glu Leu Cys Lys Ala Ile Leu Arg Val Ala Glu Leu Ser 145	150	155	480
tcg gat gac ttt cac tta gac cgg cat tta tat ttt gct tgc cga gat Ser Asp Asp Phe His Leu Asp Arg His Leu Tyr Phe Ala Cys Arg Asp 165	170	175	528
gat cgg gag cgt ttt tgt gaa aat aca caa gct ggt gag ggc aga gtg Asp Arg Glu Arg Phe Cys Glu Asn Thr Gln Ala Gly Glu Gly Arg Val 180	185	190	576
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gtc agc agt gag tgc cag ggg gag atg ctg gat tac cga cgc atg ttg Val Ser Ser Glu Cys Gln Gly Glu Met Leu Asp Tyr Arg Arg Met Leu 275	280	285	864
atg gaa gac ttt tct ctg agc cct gag atc atc cta agc tgt cgg ggg Met Glu Asp Phe Ser Leu Ser Pro Glu Ile Ile Leu Ser Cys Arg Gly 290	295	300	912
gag att gaa cac cat tgt tcc gga tta cat cga aaa ggg cgg acc cta Glu Ile Glu His His Cys Ser Gly Leu His Arg Lys Gly Arg Thr Leu 305	310	315	960

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aac tgc cag cag gcg ctt caa aca ctg att cag gag act gac cct ggt Asn Cys Gln Gln Ala Leu Gln Thr Leu Ile Gln Glu Thr Asp Pro Gly	340	345	350	1056
gca gat tac cgc att gat cga gct ttg aat gaa gct tgt gaa tct gta Ala Asp Tyr Arg Ile Asp Arg Ala Leu Asn Glu Ala Cys Glu Ser Val	355	360	365	1104
atc cag aca gcc tgc aaa cat ata aga tct gga gac cca atg atc ttg Ile Gln Thr Ala Cys Lys His Ile Arg Ser Gly Asp Pro Met Ile Leu	370	375	380	1152
tcg tgc ctg atg gaa cat tta tac aca gag aag atg gta gaa gac tgt Ser Cys Leu Met Glu His Leu Tyr Thr Glu Lys Met Val Glu Asp Cys	385	390	395	1200
gaa cac cgt ctc tta gag ctg cag tat ttc atc tcc cgg gat tgg aag Glu His Arg Leu Leu Glu Leu Gln Tyr Phe Ile Ser Arg Asp Trp Lys	405	410	415	1248
ctg gac cct gtc ctg tac cgc aag tgc cag gga gac gct tct cgt ctt Leu Asp Pro Val Leu Tyr Arg Lys Cys Gln Gly Asp Ala Ser Arg Leu	420	425	430	1296
tgc cac acc cac ggt tgg aat gag acc agc gaa ttt atg cct cag gga Cys His Thr His Gly Trp Asn Glu Thr Ser Glu Phe Met Pro Gln Gly	435	440	445	1344
gct gtg ttc tct tgt tta tac aga cac gcc tac cgc act gag gaa cag Ala Val Phe Ser Cys Leu Tyr Arg His Ala Tyr Arg Thr Glu Glu Gln	450	455	460	1392
gga agg agg ctc tca cgg gag tgc cga gct gaa gtc caa agg atc cta Gly Arg Arg Leu Ser Arg Glu Cys Arg Ala Glu Val Gln Arg Ile Leu	465	470	475	1440
cac cag cgt gcc atg gat gtc aag ctg gat cct gcc ctc cag gat aag His Gln Arg Ala Met Asp Val Lys Leu Asp Pro Ala Leu Gln Asp Lys	485	490	495	1488
tgc ctg att gat ctg gga aaa tgg tgc agt gag aaa aca gag act gga Cys Leu Ile Asp Leu Gly Lys Trp Cys Ser Glu Lys Thr Glu Thr Gly	500	505	510	1536
cag aag ctg gag tgc ctt cag gac cat ctg gat gac tta gtg gtg gag Gln Lys Leu Glu Cys Leu Gln Asp His Leu Asp Asp Leu Val Val Glu	515	520	525	1584
tgt aga gat ata gtt ggc aac ctc act gag tta gaa tca gag gat att Cys Arg Asp Ile Val Gly Asn Leu Thr Glu Leu Glu Ser Glu Asp Ile	530	535	540	1632

caa ata gaa gcc ttg ctg atg aga gcc tgc gag ccc ata att cag aac Gln Ile Glu Ala Leu Leu Met Arg Ala Cys Glu Pro Ile Ile Gln Asn 545	550	555	560	1680
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gag tgt ctg ata cag aac aaa cac cag aag gac atg aac gag aag tgt Glu Cys Leu Ile Gln Asn Lys His Gln Lys Asp Met Asn Glu Lys Cys 580	585	590		1776
gcc atc gga gtt acc cac ttc cag ctg gtg cag atg aag gat ttt cgg Ala Ile Gly Val Thr His Phe Gln Leu Val Gln Met Lys Asp Phe Arg 595	600	605		1824
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tgc cca aac ata aaa aag aag gtg gac gtg gtg atc tgc ctg acg acg Cys Pro Asn Ile Lys Lys Val Asp Val Val Ile Cys Leu Ser Thr 625	630	635	640	1920
acc gtg cgc aat gac act ctg cag gaa gcc aag gag cac agg gtg tcc Thr Val Arg Asn Asp Thr Leu Gln Glu Ala Lys Glu His Arg Val Ser 645	650	655		1968
ctg aag tgc cgc agg cag ctc cgt gtg gag gag ctg gag atg acg gag Leu Lys Cys Arg Arg Gln Leu Arg Val Glu Glu Leu Glu Met Thr Glu 660	665	670		2016
gac atc cgc ttg gag cca gat cta tac gaa gcc tgc aag agt gac atc Asp Ile Arg Leu Glu Pro Asp Leu Tyr Glu Ala Cys Lys Ser Asp Ile 675	680	685		2064
aaa aac ttc tgt tcc gct gtg caa tat ggc aac gct cag att atc gaa Lys Asn Phe Cys Ser Ala Val Gln Tyr Gly Asn Ala Gln Ile Ile Glu 690	695	700		2112
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gta ttt aag ctg cag gag aca gag atg atg gac cca gag cta gac tac Val Phe Lys Leu Gln Glu Thr Glu Met Met Asp Pro Glu Leu Asp Tyr 725	730	735		2208
acc ctc atg agg gtc tgc aag cag atg ata aag aag ttc tgt ccg gaa Thr Leu Met Arg Val Cys Lys Gln Met Ile Lys Lys Phe Cys Pro Glu 740	745	750		2256
gca gat tct aaa acc atg ttg cag tgc ttg aag caa aat aaa aac agt Ala Asp Ser Lys Thr Met Leu Gln Cys Leu Lys Gln Asn Lys Asn Ser 755	760	765		2304
gaa ttg atg gat ccc aaa tgc aaa cag atg ata acc aag cgc cag atc				2352

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Thr	Gln	Asn	Thr	Asp	Tyr	Arg	Leu	Asn	Pro	Met	Leu	Arg	Lys	Ala	Cys	
785					790				795					800		
aaa	gct	gac	att	cct	aaa	ttc	tgt	cac	ggt	atc	ctg	act	aag	gcc	aag	2448
Lys	Ala	Asp	Ile	Pro	Lys	Phe	Cys	His	Gly	Ile	Leu	Thr	Lys	Ala	Lys	
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gat	gat	tca	gaa	tta	gaa	gga	caa	gtc	atc	tct	tgc	ctg	aag	ctg	aga	2496
Asp	Asp	Ser	Glu	Leu	Glu	Gly	Gln	Val	Ile	Ser	Cys	Leu	Lys	Leu	Arg	
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tat	gct	gac	cag	cgc	ctg	tct	tca	gac	tgt	gaa	gac	cag	atc	cga	atc	2544
Tyr	Ala	Asp	Gln	Arg	Leu	Ser	Ser	Asp	Cys	Glu	Asp	Gln	Ile	Arg	Ile	
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att	atc	cag	qag	tcc	gcc	ctg	gac	tac	cgc	ctg	gat	cct	cag	ctc	cag	2592
Ile	Ile	Gln	Glu	Ser	Ala	Leu	Asp	Tyr	Arg	Leu	Asp	Pro	Gln	Leu	Gln	
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ctg	cac	tgc	tca	gac	gag	atc	tcc	agt	cta	tgt	gct	gaa	gaa	gca	gca	2640
Leu	His	Cys	Ser	Asp	Glu	Ile	Ser	Ser	Leu	Cys	Ala	Glu	Glu	Ala	Ala	
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gcc	caa	gag	cag	aca	ggt	cag	gtg	gag	gag	tgc	ctc	aag	gtc	aac	ctg	2688
Ala	Gln	Glu	Gln	Thr	Gly	Gln	Val	Glu	Glu	Cys	Leu	Lys	Val	Asn	Leu	
					885				890					895		
ctc	aag	atc	aaa	aca	gaa	ttg	tgt	aaa	aag	gaa	gtg	cta	aac	atg	ctg	2736
Leu	Lys	Ile	Lys	Thr	Glu	Leu	Cys	Lys	Lys	Glu	Val	Leu	Asn	Met	Leu	
					900				905					910		
aag	gaa	agc	aaa	gca	gac	atc	ttt	gtt	gac	ccg	gta	ctt	cat	act	gct	2784
Lys	Glu	Ser	Lys	Ala	Asp	Ile	Phe	Val	Asp	Pro	Val	Leu	His	Thr	Ala	
					915				920					925		
tgt	gcc	ctg	gac	att	aaa	cac	cac	tgc	gca	gcc	atc	acc	cct	ggc	cgc	2832
Cys	Ala	Leu	Asp	Ile	Lys	His	His	Cys	Ala	Ala	Ile	Thr	Pro	Gly	Arg	
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ggg	cgt	caa	atg	tcc	tgt	ctc	atg	gaa	gca	ctg	gag	gat	aag	cgg	gtg	2880
Gly	Arg	Gln	Met	Ser	Cys	Leu	Met	Glu	Ala	Leu	Glu	Asp	Lys	Arg	Val	
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agg	tta	cag	ccc	gag	tgc	aaa	aag	cgc	ctc	aat	gac	cgg	att	gag	atg	2928
Arg	Leu	Gln	Pro	Glu	Cys	Lys	Lys	Arg	Leu	Asn	Asp	Arg	Ile	Glu	Met	
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tgg	agt	tac	gca	gca	aag	gtg	gcc	cca	gca	gat	ggc	ttc	tct	gat	ctt	2976
Trp	Ser	Tyr	Ala	Ala	Lys	Val	Ala	Pro	Ala	Asp	Gly	Phe	Ser	Asp	Leu	
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gcc	atg	caa	gta	atg	acg	tct	cca	tct	aag	aac	tac	att	ctc	tct	gtg	3024
Ala	Met	Gln	Val	Met	Thr	Ser	Pro	Ser	Lys	Asn	Tyr	Ile	Leu	Ser	Val	

995

1000

1005

atc agt ggg agc atc tgt ata ttg ttc ctg att ggc ctg atg tgt gga      3072  
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cgg atc acc aag cga gtg aca cga gag ctc aag gac agg tag      3114  
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Ala Asp Glu Pro Val Gly Lys Gly Tyr Met Val Ser Cys Leu Val Asp  
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His Arg Gly Asn Ile Thr Glu Tyr Gln Cys His Gln Tyr Ile Thr Lys  
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Met Thr Ala Ile Ile Phe Ser Asp Tyr Arg Leu Ile Cys Gly Phe Met  
 85                90                95  
Asp Asp Cys Lys Asn Asp Ile Asn Ile Leu Lys Cys Gly Ser Ile Arg  
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 115                120                125  
Glu Lys Gly Leu Val Lys Glu Ala Glu Glu Arg Glu Pro Lys Ile Gln  
 130                135                140  
Val Ser Glu Leu Cys Lys Ala Ile Leu Arg Val Ala Glu Leu Ser  
 145                150                155                160  
Ser Asp Asp Phe His Leu Asp Arg His Leu Tyr Phe Ala Cys Arg Asp  
 165                170                175  
Asp Arg Glu Arg Phe Cys Glu Asn Thr Gln Ala Gly Glu Gly Arg Val  
 180                185                190  
Tyr Lys Cys Leu Phe Asn His Lys Phe Glu Glu Ser Met Ser Glu Lys  
 195                200                205  
Cys Arg Glu Ala Leu Thr Thr Arg Gln Lys Leu Ile Ala Gln Asp Tyr  
 210                215                220  
Lys Val Ser Tyr Ser Leu Ala Lys Ser Cys Lys Ser Asp Leu Lys Lys  
 225                230                235                240  
Tyr Arg Cys Asn Val Glu Asn Leu Pro Arg Ser Arg Glu Ala Arg Leu  
 245                250                255  
Ser Tyr Leu Leu Met Cys Leu Glu Ser Ala Val His Arg Gly Arg Gln  
 260                265                270  
Val Ser Ser Glu Cys Gln Gly Glu Met Leu Asp Tyr Arg Arg Met Leu  
 275                280                285  
Met Glu Asp Phe Ser Leu Ser Pro Glu Ile Ile Leu Ser Cys Arg Gly  
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Glu Ile Glu His His Cys Ser Gly Leu His Arg Lys Gly Arg Thr Leu

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His Cys Leu Met Lys Val Val Arg Gly Glu Lys Gly Asn Leu Gly Met			
325	330	335	
Asn Cys Gln Gln Ala Leu Gln Thr Leu Ile Gln Glu Thr Asp Pro Gly			
340	345	350	
Ala Asp Tyr Arg Ile Asp Arg Ala Leu Asn Glu Ala Cys Glu Ser Val			
355	360	365	
Ile Gln Thr Ala Cys Lys His Ile Arg Ser Gly Asp Pro Met Ile Leu			
370	375	380	
Ser Cys Leu Met Glu His Leu Tyr Thr Glu Lys Met Val Glu Asp Cys			
385	390	395	400
Glu His Arg Leu Leu Glu Leu Gln Tyr Phe Ile Ser Arg Asp Trp Lys			
405	410	415	
Leu Asp Pro Val Leu Tyr Arg Lys Cys Gln Gly Asp Ala Ser Arg Leu			
420	425	430	
Cys His Thr His Gly Trp Asn Glu Thr Ser Glu Phe Met Pro Gln Gly			
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Ala Val Phe Ser Cys Leu Tyr Arg His Ala Tyr Arg Thr Glu Glu Gln			
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Gly Arg Arg Leu Ser Arg Glu Cys Arg Ala Glu Val Gln Arg Ile Leu			
465	470	475	480
His Gln Arg Ala Met Asp Val Lys Leu Asp Pro Ala Leu Gln Asp Lys			
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Cys Leu Ile Asp Leu Gly Lys Trp Cys Ser Glu Lys Thr Glu Thr Gly			
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Gln Lys Leu Glu Cys Leu Gln Asp His Leu Asp Asp Leu Val Val Glu			
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Cys Arg Asp Ile Val Gly Asn Leu Thr Glu Leu Glu Ser Glu Asp Ile			
530	535	540	
Gln Ile Glu Ala Leu Leu Met Arg Ala Cys Glu Pro Ile Ile Gln Asn			
545	550	555	560
Phe Cys His Asp Val Ala Asp Asn Gln Ile Asp Ser Gly Asp Leu Met			
565	570	575	
Glu Cys Leu Ile Gln Asn Lys His Gln Lys Asp Met Asn Glu Lys Cys			
580	585	590	
Ala Ile Gly Val Thr His Phe Gln Leu Val Gln Met Lys Asp Phe Arg			
595	600	605	
Phe Ser Tyr Lys Phe Lys Met Ala Cys Lys Glu Asp Val Leu Lys Leu			
610	615	620	
Cys Pro Asn Ile Lys Lys Val Asp Val Val Ile Cys Leu Ser Thr			
625	630	635	640
Thr Val Arg Asn Asp Thr Leu Gln Glu Ala Lys Glu His Arg Val Ser			
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Leu Lys Cys Arg Arg Gln Leu Arg Val Glu Glu Leu Glu Met Thr Glu			
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Asp Ile Arg Leu Glu Pro Asp Leu Tyr Glu Ala Cys Lys Ser Asp Ile			
675	680	685	
Lys Asn Phe Cys Ser Ala Val Gln Tyr Gly Asn Ala Gln Ile Ile Glu			
690	695	700	
Cys Leu Lys Glu Asn Lys Lys Gln Leu Ser Thr Arg Cys His Gln Lys			
705	710	715	720
Val Phe Lys Leu Gln Glu Thr Glu Met Met Asp Pro Glu Leu Asp Tyr			
725	730	735	
Thr Leu Met Arg Val Cys Lys Gln Met Ile Lys Lys Phe Cys Pro Glu			
740	745	750	
Ala Asp Ser Lys Thr Met Leu Gln Cys Leu Lys Gln Asn Lys Asn Ser			
755	760	765	

Glu Leu Met Asp Pro Lys Cys Lys Gln Met Ile Thr Lys Arg Gln Ile  
 770 775 780  
 Thr Gln Asn Thr Asp Tyr Arg Leu Asn Pro Met Leu Arg Lys Ala Cys  
 785 790 795 800  
 Lys Ala Asp Ile Pro Lys Phe Cys His Gly Ile Leu Thr Lys Ala Lys  
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 Asp Asp Ser Glu Leu Glu Gly Gln Val Ile Ser Cys Leu Lys Leu Arg  
 820 825 830  
 Tyr Ala Asp Gln Arg Leu Ser Ser Asp Cys Glu Asp Gln Ile Arg Ile  
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 Ile Ile Gln Glu Ser Ala Leu Asp Tyr Arg Leu Asp Pro Gln Leu Gln  
 850 855 860  
 Leu His Cys Ser Asp Glu Ile Ser Ser Leu Cys Ala Glu Glu Ala Ala  
 865 870 875 880  
 Ala Gln Glu Gln Thr Gly Gln Val Glu Glu Cys Leu Lys Val Asn Leu  
 885 890 895  
 Leu Lys Ile Lys Thr Glu Leu Cys Lys Lys Glu Val Leu Asn Met Leu  
 900 905 910  
 Lys Glu Ser Lys Ala Asp Ile Phe Val Asp Pro Val Leu His Thr Ala  
 915 920 925  
 Cys Ala Leu Asp Ile Lys His His Cys Ala Ala Ile Thr Pro Gly Arg  
 930 935 940  
 Gly Arg Gln Met Ser Cys Leu Met Glu Ala Leu Glu Asp Lys Arg Val  
 945 950 955 960  
 Arg Leu Gln Pro Glu Cys Lys Lys Arg Leu Asn Asp Arg Ile Glu Met  
 965 970 975  
 Trp Ser Tyr Ala Ala Lys Val Ala Pro Ala Asp Gly Phe Ser Asp Leu  
 980 985 990  
 Ala Met Gln Val Met Thr Ser Pro Ser Lys Asn Tyr Ile Leu Ser Val  
 995 1000 1005  
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 1025 1030 1035

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 35 40 45  
 Phe Val Gly Gln Ala Gly Gly Gly Pro Ala Gly Gln Gln Leu Pro  
 50 55 60  
 Gln Leu Pro Gln Ser Ser Gln Leu Gln Gln Gln Gln Gln Gln Gln  
 65 70 75 80  
 Gln Gln Gln Pro Gln Pro Pro Gln Pro Pro Phe Pro Ala Gly Gly  
 85 90 95  
 Pro Pro Arg Arg Gly Gly Ala Gly Gly Gly Trp Lys Leu Ala  
 100 105 110  
 Glu Glu Glu Ser Cys Arg Glu Asp Val Thr Arg Val Cys Pro Lys His

115	120	125
Thr Trp Ser Asn Asn Leu Ala Val	Leu Glu Cys Leu Gln Asp Val Arg	
130	135	140
Glu Pro Glu Asn Glu Ile Ser Ser Asp Cys Asn His	Leu Leu Trp Asn	
145	150	155
Tyr Lys Leu Asn Leu Thr Thr Asp Pro Lys Phe Glu Ser Val Ala Arg		160
165	170	175
Glu Val Cys Lys Ser Thr Ile Thr Glu Ile Lys Glu Cys Ala Asp Glu		
180	185	190
Pro Val Gly Lys Gly Tyr Met Val Ser Cys Leu Val Asp His Arg Gly		
195	200	205
Asn Ile Thr Glu Tyr Gln Cys His Gln Tyr Ile Thr Lys Met Thr Ala		
210	215	220
Ile Ile Phe Ser Asp Tyr Arg Leu Ile Cys Gly Phe Met Asp Asp Cys		
225	230	235
Lys Asn Asp Ile Asn Ile Leu Lys Cys Gly Ser Ile Arg Leu Gly Glu		
245	250	255
Lys Asp Ala His Ser Gln Gly Glu Val Val Ser Cys Leu Glu Lys Gly		
260	265	270
Leu Val Lys Glu Ala Glu Glu Arg Glu Pro Lys Ile Gln Val Ser Glu		
275	280	285
Leu Cys Lys Ala Ile Leu Arg Val Ala Glu Leu Ser Ser Asp Asp		
290	295	300
Phe His Leu Asp Arg His Leu Tyr Phe Ala Cys Arg Asp Asp Arg Glu		
305	310	315
Arg Phe Cys Glu Asn Thr Gln Ala Cys Glu Gly Arg Val Tyr Lys Cys		
325	330	335
Leu Phe Asn His Lys Phe Glu Glu Ser Met Ser Glu Lys Cys Arg Glu		
340	345	350
Ala Leu Thr Thr Arg Gln Lys Leu Ile Ala Gln Asp Tyr Lys Val Ser		
355	360	365
Tyr Ser Leu Ala Lys Ser Cys Lys Ser Asp Leu Lys Lys Tyr Arg Cys		
370	375	380
Asn Val Glu Asn Leu Pro Arg Ser Arg Glu Ala Arg Leu Ser Tyr Leu		
385	390	395
Leu Met Cys Leu Glu Ser Ala Val His Arg Gly Arg Gln Val Ser Ser		
405	410	415
Glu Cys Gln Gly Glu Met Leu Asp Tyr Arg Arg Met Leu Met Glu Asp		
420	425	430
Phe Ser Leu Ser Pro Glu Ile Ile Leu Ser Cys Arg Gly Glu Ile Glu		
435	440	445
His His Cys Ser Gly Leu His Arg Lys Gly Arg Thr Leu His Cys Leu		
450	455	460
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465	470	475
Gln Ala Leu Gln Thr Leu Ile Gln Glu Thr Asp Pro Gly Ala Asp Tyr		
485	490	495
Arg Ile Asp Arg Ala Leu Asn Glu Ala Cys Glu Ser Val Ile Gln Thr		
500	505	510
Ala Cys Lys His Ile Arg Ser Gly Asp Pro Met Ile Ser Ser Cys Leu		
515	520	525
Met Glu His Leu Tyr Thr Glu Lys Met Val Glu Asp Cys Glu His Arg		
530	535	540
Leu Leu Glu Leu Gln Tyr Phe Ile Ser Arg Asp Trp Lys Leu Asp Pro		
545	550	555
Val Leu Tyr Arg Lys Cys Gln Gly Asp Ala Ser Arg Leu Cys His Thr		
565	570	575

His Gly Trp Asn Glu Thr Ser Glu Phe Met Pro Gln Gly Ala Val Phe  
       580                 585                 590  
 Ser Cys Leu Tyr Arg Glu Ala Tyr Arg Thr Glu Glu Gln Gly Arg Arg  
       595                 600                 605  
 Leu Ser Arg Glu Cys Arg Ala Glu Val Gln Arg Ile Leu His Gln Arg  
       610                 615                 620  
 Ala Met Asp Val Lys Leu Asp Pro Ala Leu Gln Asp Lys Cys Leu Ile  
       625                 630                 635                 640  
 Asp Leu Gly Lys Trp Cys Ser Glu Lys Thr Glu Thr Gly Gln Glu Leu  
       645                 650                 655  
 Glu Cys Leu Gln Asp His Leu Asp Asp Leu Val Val Glu Cys Arg Asp  
       660                 665                 670  
 Ile Val Gly Asn Leu Thr Glu Leu Glu Ser Glu Asp Ile Gln Ile Glu  
       675                 680                 685  
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 Asp Ala Asp Asn Gln Ile Asp Ser Gly Asp Leu Met Glu Cys Leu Ile  
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 Thr His Phe Gln Leu Val Gln Met Lys Asp Phe Arg Phe Ser Tyr Lys  
       740                 745                 750  
 Phe Lys Met Ala Cys Lys Glu Asp Val Leu Lys Leu Cys Pro Asn Ile  
       755                 760                 765  
 Lys Lys Lys Val Asp Val Val Ile Cys Leu Ser Thr Thr Val Arg Asn  
       770                 775                 780  
 Asp Thr Leu Gln Glu Ala Lys Glu His Arg Val Ser Leu Lys Cys Arg  
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 Arg Gln Leu Arg Val Glu Glu Leu Glu Met Thr Glu Asp Ile Arg Leu  
       805                 810                 815  
 Glu Pro Asp Leu Tyr Glu Ala Cys Lys Ser Asp Ile Lys Asn Phe Cys  
       820                 825                 830  
 Ser Ala Val Gln Tyr Gly Asn Ala Gln Ile Ile Glu Cys Leu Lys Glu  
       835                 840                 845  
 Asn Lys Lys Gln Leu Ser Thr Arg Cys His Gln Lys Val Phe Lys Leu  
       850                 855                 860  
 Gln Glu Thr Glu Met Met Asp Pro Glu Leu Asp Tyr Thr Leu Met Arg  
       865                 870                 875                 880  
 Val Cys Lys Gln Met Ile Lys Arg Phe Cys Pro Glu Ala Asp Ser Lys  
       885                 890                 895  
 Thr Met Leu Gln Cys Leu Lys Gln Asn Lys Asn Ser Glu Leu Met Asp  
       900                 905                 910  
 Pro Lys Cys Lys Gln Met Ile Thr Lys Arg Gln Ile Thr Gln Asn Thr  
       915                 920                 925  
 Asp Tyr Arg Leu Asn Pro Met Leu Arg Lys Ala Cys Lys Ala Asp Ile  
       930                 935                 940  
 Pro Lys Phe Cys His Gly Ile Leu Thr Lys Ala Lys Asp Asp Ser Glu  
       945                 950                 955                 960  
 Leu Glu Gly Gln Val Ile Ser Cys Leu Lys Leu Arg Tyr Ala Asp Gln  
       965                 970                 975  
 Arg Leu Ser Ser Asp Cys Glu Asp Gln Ile Arg Ile Ile Gln Glu  
       980                 985                 990  
 Ser Ala Leu Asp Tyr Arg Leu Asp Pro Gln Leu Gln Leu His Cys Ser  
       995                 1000                1005  
 Asp Glu Ile Ser Ser Leu Cys Ala Glu Glu Ala Ala Ala Gln Glu Gln  
       1010                1015                1020  
 Thr Gly Gln Val Glu Glu Cys Leu Lys Val Asn Leu Leu Lys Ile Lys

1025	1030	1035	1040
Thr Glu Leu Cys Lys Lys Glu Val Leu Asn Met Leu Lys Glu Ser Lys			
1045	1050	1055	
Ala Asp Ile Phe Val Asp Pro Val Leu His Thr Ala Cys Ala Leu Asp			
1060	1065	1070	
Ile Lys His His Cys Ala Ala Leu Thr Pro Gly Arg Gly Arg Gln Met			
1075	1080	1085	
Ser Cys Leu Met Glu Ala Leu Glu Asp Lys Arg Val Arg Leu Gln Pro			
1090	1095	1100	
Glu Cys Lys Lys Arg Leu Asn Asp Arg Ile Glu Met Trp Ser Tyr Ala			
1105	1110	1115	1120
Ala Lys Val Ala Pro Ala Asp Gly Phe Ser Asp Leu Ala Met Gln Val			
1125	1130	1135	
Met Thr Ser Pro Ser Lys Asn Tyr Ile Leu Ser Val Ile Ser Gly Ser			
1140	1145	1150	
Ile Cys Ile Leu Phe Leu Ile Gly Leu Met Cys Gly Arg Ile Thr Lys			
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Arg Val Thr Arg Glu Leu Lys Asp Arg			
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His Gly Val His Ser Gln Gly Gln Gly Pro Gly Ala Asn Phe Val Ser			
35	40	45	
Phe Val Gly Gln Ala Gly Gly Gly Pro Ala Gly Gln Gln Leu Pro			
50	55	60	
Gln Leu Leu Gln Ser Ser Gln Leu Gln Gln Gln Gln Gln Gln Gln			
65	70	75	80
Gln Gln Gln Leu Gln Pro Pro Gln Pro Pro Phe Pro Ala Gly Gly			
85	90	95	
Pro Pro Ala Arg Arg Gly Gly Ala Gly Gly Gly Trp Lys Leu			
100	105	110	
Ala Glu Glu Glu Ser Cys Arg Glu Asp Val Thr Arg Val Cys Pro Lys			
115	120	125	
His Thr Trp Ser Asn Asn Leu Ala Val Leu Glu Cys Leu Gln Asp Val			
130	135	140	
Arg Glu Pro Glu Asn Glu Ile Ser Ser Asp Cys Asn His Leu Leu Trp			
145	150	155	160
Asn Tyr Lys Leu Asn Leu Thr Thr Asp Pro Lys Phe Glu Ser Val Ala			
165	170	175	
Arg Glu Val Cys Lys Ser Thr Ile Thr Glu Ile Lys Glu Cys Ala Asp			
180	185	190	
Glu Pro Val Gly Lys Gly Tyr Met Val Ser Cys Leu Val Asp His Arg			
195	200	205	
Gly Asn Ile Thr Glu Tyr Gln Cys His Gln Tyr Ile Thr Lys Met Thr			
210	215	220	
Ala Ile Ile Phe Ser Asp Tyr Arg Leu Ile Cys Gly Phe Met Asp Asp			
225	230	235	240

Cys Lys Asn Asp Ile Asn Ile Leu Lys Cys Gly Ser Ile Arg Leu Gly  
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 Glu Lys Asp Ala His Ser Gln Gly Glu Val Val Ser Cys Leu Glu Lys  
                   260                  265                  270  
 Gly Leu Val Lys Glu Ala Glu Glu Arg Glu Pro Lys Ile Gln Val Ser  
                   275                  280                  285  
 Glu Leu Cys Lys Lys Ala Ile Leu Arg Val Ala Glu Leu Ser Ser Asp  
                   290                  295                  300  
 Asp Phe His Leu Asp Arg His Leu Tyr Phe Ala Cys Arg Asp Asp Arg  
                   305                  310                  315                  320  
 Glu Arg Phe Cys Glu Asn Thr Gln Ala Arg Glu Gly Arg Val Tyr Lys  
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 Cys Leu Phe Asn His Lys Phe Glu Glu Ser Met Ser Glu Lys Cys Arg  
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 Glu Ala Leu Thr Thr Arg Gln Lys Leu Ile Ala Gln Asp Tyr Lys Val  
                   355                  360                  365  
 Ser Tyr Ser Leu Ala Lys Ser Cys Lys Ser Asp Leu Lys Lys Tyr Arg  
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 Cys Asn Val Glu Asn Leu Pro Arg Ser Arg Glu Ala Arg Leu Ser Tyr  
                   385                  390                  395                  400  
 Leu Leu Met Cys Leu Glu Ser Ala Val His Arg Gly Arg Gln Val Ser  
                   405                  410                  415  
 Ser Glu Cys Gln Gly Glu Met Leu Asp Tyr Arg Arg Met Leu Met Glu  
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 Asp Phe Ser Leu Ser Pro Glu Ile Ile Leu Ser Cys Arg Gly Glu Ile  
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 Glu His His Cys Ser Gly Leu His Arg Lys Gly Arg Thr Leu His Cys  
                   450                  455                  460  
 Leu Met Lys Val Val Arg Gly Glu Lys Gly Asn Leu Gly Met Asn Cys  
                   465                  470                  475                  480  
 Gln Gln Ala Leu Gln Thr Leu Ile Gln Glu Thr Asp Pro Gly Ala Asp  
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 Tyr Arg Ile Asp Arg Ala Leu Asn Glu Ala Cys Glu Ser Val Ile Gln  
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 Thr Ala Cys Lys His Ile Arg Ser Gly Asp Pro Met Ile Leu Ser Cys  
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 Leu Met Glu His Leu Tyr Thr Glu Lys Met Val Glu Asp Cys Glu His  
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                   545                  550                  555                  560  
 Pro Val Leu Tyr Arg Lys Cys Gln Gly Asp Ala Ser Arg Leu Cys His  
                   565                  570                  575  
 Thr His Gly Trp Asn Glu Thr Ser Glu Phe Met Pro Gln Gly Ala Val  
                   580                  585                  590  
 Phe Ser Cys Leu Tyr Arg His Ala Tyr Arg Thr Glu Glu Gln Gly Arg  
                   595                  600                  605  
 Arg Leu Leu Asp Pro Ala Leu Gln Asp Lys Cys Leu Ile Asp Leu Gly  
                   610                  615                  620  
 Lys Trp Cys Ser Glu Lys Thr Glu Thr Gly Gln Glu Leu Glu Cys Leu  
                   625                  630                  635                  640  
 Ser Arg Glu Cys Arg Ala Glu Val Gln Arg Ile Leu His Gln Arg Ala  
                   645                  650                  655  
 Met Asp Val Lys Gln Asp His Leu Asp Asp Leu Val Val Glu Cys Arg  
                   660                  665                  670  
 Asp Ile Val Gly Asn Leu Thr Glu Leu Glu Ser Glu Asp Ile Gln Ile  
                   675                  680                  685  
 Glu Ala Leu Leu Met Arg Ala Cys Glu Pro Ile Ile Gln Asn Phe Cys

690	695	700														
His	Asp	Val	Ala	Asp	Asn	Gln	Ile	Asp	Ser	Gly	Asp	Leu	Met	Glu	Cys	
705																720
Leu	Ile	Gln	Asn	Lys	His	Gln	Lys	Asp	Met	Asn	Glu	Lys	Cys	Ala	Ile	
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Gly	Val	Thr	His	Phe	Gln	Leu	Val	Gln	Met	Lys	Asp	Phe	Arg	Phe	Ser	
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Tyr	Lys	Phe	Lys	Met	Ala	Cys	Lys	Glu	Asp	Val	Leu	Lys	Leu	Cys	Pro	
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Asn	Ile	Lys	Lys	Lys	Val	Asp	Val	Val	Ile	Cys	Leu	Ser	Thr	Thr	Val	
															780	
Arg	Asn	Asp	Thr	Leu	Gln	Glu	Ala	Lys	His	Arg	Val	Ser	Leu	Lys		
															800	
Cys	Arg	Arg	Gln	Leu	Arg	Val	Glu	Glu	Leu	Glu	Met	Thr	Glu	Asp	Ile	
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Arg	Leu	Glu	Pro	Asp	Leu	Tyr	Glu	Ala	Cys	Lys	Ser	Asp	Ile	Lys	Asn	
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Phe	Cys	Ser	Ala	Val	Gln	Tyr	Gly	Asn	Ala	Gln	Ile	Ile	Glu	Cys	Leu	
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Lys	Glu	Asn	Lys	Lys	Gln	Leu	Ser	Thr	Arg	Cys	His	Gln	Lys	Val	Phe	
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Lys	Leu	Gln	Glu	Thr	Glu	Met	Met	Asp	Pro	Glu	Leu	Asp	Tyr	Thr	Leu	
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Met	Arg	Val	Cys	Lys	Gln	Met	Ile	Lys	Arg	Phe	Cys	Pro	Glu	Ala	Asp	
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Ser	Lys	Thr	Met	Leu	Gln	Cys	Leu	Lys	Gln	Asn	Lys	Asn	Ser	Glu	Leu	
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Met	Asp	Pro	Lys	Cys	Lys	Gln	Met	Ile	Thr	Lys	Arg	Gln	Ile	Thr	Gln	
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Asn	Thr	Asp	Tyr	Arg	Leu	Asn	Pro	Met	Leu	Arg	Lys	Ala	Cys	Lys	Ala	
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Asp	Ile	Pro	Lys	Phe	Cys	His	Gly	Ile	Leu	Thr	Lys	Ala	Lys	Asp	Asp	
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Ser	Glu	Leu	Glu	Gly	Gln	Val	Ile	Ser	Cys	Leu	Lys	Leu	Arg	Tyr	Ala	
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Asp	Gln	Arg	Leu	Ser	Ser	Asp	Cys	Glu	Asp	Gln	Ile	Arg	Ile	Ile	Ile	
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Gln	Glu	Ser	Ala	Leu	Asp	Tyr	Arg	Leu	Asp	Pro	Gln	Leu	Gln	Leu	His	
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Cys	Ser	Asp	Glu	Ile	Ser	Ser	Leu	Cys	Ala	Glu	Glu	Ala	Ala	Ala	Gln	
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Glu	Gln	Thr	Gly	Gln	Val	Glu	Glu	Cys	Leu	Lys	Val	Asn	Leu	Leu	Lys	
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Ile	Lys	Thr	Glu	Leu	Cys	Lys	Lys	Glu	Val	Leu	Asn	Met	Leu	Lys	Glu	
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Ser	Lys	Ala	Asp	Ile	Phe	Val	Asp	Pro	Val	Leu	His	Thr	Ala	Cys	Ala	
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Leu	Asp	Ile	Lys	His	His	Cys	Ala	Ala	Ile	Thr	Pro	Gly	Arg	Gly	Arg	
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Gln	Met	Ser	Cys	Leu	Met	Glu	Ala	Leu	Glu	Asp	Lys	Arg	Val	Arg	Leu	
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Gln	Pro	Glu	Cys	Lys	Lys	Arg	Leu	Asn	Asp	Arg	Ile	Glu	Met	Trp	Ser	
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Tyr	Ala	Ala	Lys	Val	Ala	Pro	Ala	Asp	Gly	Phe	Ser	Asp	Leu	Ala	Met	
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Gln	Val	Met	Thr	Ser	Pro	Ser	Lys	Asn	Tyr	Ile	Leu	Ser	Val	Ile	Ser	
															1150	

Gly Ser Ile Cys Ile Leu Phe Leu Ile Gly Leu Met Cys Gly Arg Ile  
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 1           5           10          15

tat ggc atg cac tgg gtc cgc cag gct cca ggc aag ggg ctg gag tgg      96
Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
 20          25          30

gtg gca gtt ata tca tat gat gga agt aat aaa tac tat gca gac tcc      144
Val Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser
 35          40          45

gtg aag ggc cga ttc acc atc tcc aga gac aat tcc aag aac acg ctg      192
Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu
 50          55          60

tat ctg caa atg aac agc ctg aga gct gag gac acg gct gtg tat tac      240
Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr
 65          70          75          80

tgt gcg agg tcg act acg agg tct tat cct cta tac ggt atg gac gtt      288
Cys Ala Arg Ser Thr Thr Arg Ser Tyr Pro Leu Tyr Gly Met Asp Val
 85          90          95

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gga cag acg gcc agt att acc tgt ggg gga aat aac att gga agt aaa Gly Gln Thr Ala Ser Ile Thr Cys Gly Gly Asn Asn Ile Gly Ser Lys 20               25               30	96
agt gtg cac tgg tac cat cag aag cca ggc cag gcc cct gtg ctg gtc Ser Val His Trp Tyr His Gln Lys Pro Gly Gln Ala Pro Val Leu Val 35               40               45	144
gtc tat gat gat agc gac cgg ccc tca ggg atc cct gag cga ttc tct Val Tyr Asp Asp Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser 50               55               60	192
ggc tcc aac tct ggg aac acg gcc acc ctg acc atc acc agg gtc gaa Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Thr Arg Val Glu 65               70               75               80	240
gcc ggg gat gag gcc gac tat tac tgt cag gtg tgg gat agt agt agt Ala Gly Asp Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Ser Ser Ser 85               90               95	288
gat ctc aat tgg gtg ttc ggc gga agg acc caa gct gac cgt cct acg Asp Leu Asn Trp Val Phe Gly Gly Arg Thr Gln Ala Asp Arg Pro Thr 100              105              110	336
tca gcc caa ggc tgc ccc tcc ggt cac tct gtt ccc cgc ccc cct ctg Ser Ala Gln Gly Cys Pro Ser Gly His Ser Val Pro Arg Pro Pro Leu 115              120              125	384
aag agc ttc aag ctt Lys Ser Phe Lys Leu 130	399

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<212> PRT	
<213> Homo sapiens	

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Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp  
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Val Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser  
35 40 45  
Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu  
50 55 60  
Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr  
65 70 75 80  
Cys Ala Arg Ser Thr Thr Arg Ser Tyr Pro Leu Tyr Gly Met Asp Val  
85 90 95  
Trp Gly Gln Gly Asn Pro Val Thr  
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<210> 29  
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<212> PRT  
<213> Homo sapiens

<400> 29  
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1 5 10 15  
Gly Gln Thr Ala Ser Ile Thr Cys Gly Gly Asn Asn Ile Gly Ser Lys  
20 25 30  
Ser Val His Trp Tyr His Gln Lys Pro Gly Gln Ala Pro Val Leu Val  
35 40 45  
Val Tyr Asp Asp Ser Asp Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser  
50 55 60  
Gly Ser Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Thr Arg Val Glu  
65 70 75 80  
Ala Gly Asp Glu Ala Asp Tyr Tyr Cys Gln Val Trp Asp Ser Ser Ser  
85 90 95  
Asp Leu Asn Trp Val Phe Gly Gly Arg Thr Gln Ala Asp Arg Pro Thr  
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Lys Ser Phe Lys Leu  
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22